

Claims

- Sub D1
- 5 1. Protein or polypeptide having fibrinogen binding activity, **characterized** in that said protein or polypeptide originates from a strain among recognized ~~coagulase-negative~~ *Staphylococcus epidermidis* ~~staphylococci~~.
2. Recombinant DNA molecule containing a nucleotide sequence coding for a protein or polypeptide having fibrinogen binding activity, **characterized** in that said protein or polypeptide originates from a ~~coagulase-negative~~ *S. epidermidis* ~~staphylococcal~~ strain.
- 10 3. Plasmid, phage or phagemid containing a nucleotide sequence coding for a protein or polypeptide having fibrinogen binding activity, **characterized** in that said protein or polypeptide originates from a ~~coagulase-negative~~ *S. epidermidis* ~~staphylococcal~~ strain.
4. Micro-organism containing at least one recombinant DNA molecule according to claim 2.
- 15 5. Micro-organism containing at least one plasmid, phage or phagemid according to claim 3.
6. Method for producing a fibrinogen binding protein or a polypeptide thereof, **characterized** in that
- 20 - at least one recombinant DNA molecule according to claim 2 is introduced in a micro-organism,
- said micro-organism is cultured in a suitable medium,
- the protein thus formed is isolated by chromatographic purification.
7. Method for producing a fibrinogen binding protein or polypeptide thereof, **characterized** in that
- 25 - at least one recombinant protein according to claim 2 is expressed on a phage particle,
- said phage particle shows fibrinogen binding activity.

AMENDED SHEET

8. Recombinant DNA molecule according to claim 2, characterized in that said DNA molecule contains one or more of the following nucleotide sequences:

1 TCTAGTGATGAAGAAAAGAATGATGTGATCAATAATAATCAGTCAATAAAA
5 51 CACCGACGATAATAACCAAATAATTAAAAAGAAGAAACGAATAACTACG
101 ATGGCATAGAAAAACGCTCAGAAGATAGAACAGAGTCAACAACAAATGTA
151 GATGAAAACGAAGCAACATTTTACAAAAGACCCCTCAAGATAATACTCA
201 TCTTACAGAAGAAGAGGTAAAAGAATCCTCATCAGTCGAATCCTCAAATT
251 CATCAATTGATACTGCCCAACAACCATCTCACACAACAATAAATAGAGAA
10 301 GAATCTGTTCAAACAAGTGATAATGTAGAAGATTACACAGTATCAGATTT
351 TGCTAACTCTAAAATAAAAGAGAGTAACACTGATCTGGTAAAGAAGAGA
401 ATACTATAGAGCAACCTAATAAAGTAAAAGAAAGATTCAACAACAAGTCAG
451 CCGTCTGGCTATACAAATATAGATGAAAAATTTCAAATCAAGATGAGTT
501 ATTAAATTTACCAATAAATGAATATGAAAAAAGGCTAGACCATTATCTA
15 551 CAACATCTGCCCAACCATCGATTAAACGTGTAACCGTAAATCAATTAGCG
601 GCGGAACAAGGTTTCAATGTAAACCATTTAATTAAAGTTACTGATCAAAG
651 TATTACTGAAGGATATGATGATAGTGAAGGTGTTATTAAAGCACATGATG
701 CTGAAAACCTTAATCTATGATGTAACCTTTGAAGTAGATGATAAGGTGAAA
751 TCTGGTGATACGATGACAGTGGATATAGATAAGAATACAGTTCCATCAGA
20 801 TTTAACCGATAGCTTTACAATACCAAAAATAAAAGATAATTCTGGAGAAA
851 TCATCGCTACAGGTAATGATGATAACAAAAATAAACAAATCACCTATACT
901 TTTACAGATTATGTAGATAAGTATGAAAATATTAAAGCACACCTTAAATT
951 AACGTCATACATTGATAAATCAAGGTTCCAAATAATAATACCAAGTTAG
1001 ATGTAGAATATAAAACGGCCCTTTCATCAGTAAATAAAACAATTACGGTT
25 1051 GAATATCAAAGACCTAACGAAATCGGACTGCTAACCTTCAAAGTATGTT
1101 TACAAATATAGATACGAAAATCATAACAGTTGAGCAAACGATTTATATTA
1151 ACCCTCTTCGTTATTCAGCCAGGAAACAAATGTAAATATTTTCAGGGAAT
1201 GGTGATGAAGGTTCAACAATATAGACGATAGCACAATAATTAAAGTTTA
1251 TAAGGTTGGAGATAATCAAAATTTACCAGATAGTAACAGAATTTATGATT
30 1301 ACAGTGAATATGAAGATGTCACAAATGATGATTATGCCCAATTAGGAAAT
1351 AATAATGATGTGAATATTAATTTTGGTAATATAGATTCACCATATATTAT
1401 TAAAGTTATTAGTAAATATGACCCTAATAAGGATGATTACACGACTATAC
1451 AGCAAACGTGTGACAAATGCAGACGACTATAAATGAGTATACTGGTGAGTTT
1501 AGAACAGCATCCTATGATAATAACAATTGCTTTCTCTACAAGTTCAGGTCA
35 1551 AGGACAAGGTGACTTGCCTCCTGAAAAAATTTATAAAATCGGAGATTACG
1601 TATGGGAAGATGTAGATAAAGATGGTATTCAAATACAAATGATAATGAA
1651 AAACCGCTTAGTATGATGTTGGTAACTTTGACGTATCCTGATGGAAGTTT
1701 AAAATCAGTCAGAACAGATGAAGATGGGAAATATCAATTTGATG

40 or homologues thereof

9. Recombinant DNA molecule according to claim 2, **characterized** in that said DNA molecule encodes one or more of the following amino acid sequences:

1 SSDEEKNDVINNNQSINTDDNNQIIKKEET
 31 NNYDGIKRSRSTESTTNVDENEATFLQK
 5 61 TPQDNTHLTEEEVKESSSVESSNSSIDTAQ
 91 QPSHTTINREESVQTS DNVEDSHVSDFANS
 121 KIKESNTESGKEENTIEQPNKVKEDSTTSQ
 151 PSGYTNIDEKISNODELNLNLPINEYENKAR
 181 PLSTTSAQPSIKRVTVNQLAAEQGSNVNHL
 10 211 IKVTDQSITEGYDDSEGVKAHDAENLIYD
 241 VTFEVDDKVKSGDTMTVDIDKNTVPSDLTD
 271 SFTIPKIKDNSGEIIATGTYDNKNKQITYT
 301 FTDYVDKYENIKAHLKLTSYIDKSKVPNNN
 331 TKLDVEYKTALSSVNKTITVEYQRPNENRT
 15 361 ANLQSMFTNIDTKNHTVEQTIYINPLRYSA
 391 KETNVNISGNGDEGSTIIDDSTIIKVYKVG
 421 DNQNLPSNRIYDYSEYEDVTNDDYAQLGN
 451 NNDVNINFGNIDSPYIIKVISKYDPNKDDY
 481 TTIQQTVMQTTINEYTGEFRTASYDNTIA
 20 511 FSTSSGQGQGDLPPEKTYKIGDYVWEDVDK
 541 DGIQNTNDNEKPLSNVLVTLTYPDGTSKSV
 571 RTDEDGKYQFD.

10. Plasmid, phage or phagemid containing one or more nucleotide sequences according to claim 8 or homologues thereof.

11. Micro-organism containing at least one plasmid, phage or phagemid according to claim 9.

12. The use of an extractable fraction of staphylococci to block the adherence of staphylococci to surfaces with immobilised fibrinogen.

13. The use of the native fibrinogen binding protein or parts thereof from staphylococci to block the adherence of staphylococci to surfaces with immobilised fibrinogen.

14. The use of a protein according to claim 1 or parts thereof to block the adherence of staphylococci to surfaces.

15. The use of an immobilised protein according to claim 1 or fragments thereof to isolate or detect fibrinogen in solutions.

16. The use of a gene encoding a protein according to claim 1 or parts thereof for diagnostic purposes, e.g. to detect the presence of *S. epidermidis* and/or determine the type of organism present in a sample.

17. Antibodies raised against a protein according to claim 1 or against a peptide, encoded

by the DNA sequence according to claim 8.

18. The use of antibodies according to claim 17 for diagnostic purposes.

19. The use of antibodies according to claim 17 for therapeutic and prophylactic purposes.

20. The use of antibodies against the extractable fraction of staphylococci to block the
5 adherence of staphylococci.

21. The use of antibodies against the native fibrinogen binding protein from staphylococci
to block the adherence of staphylococci.

22. The use of antibodies against a protein according to claim 1 or parts thereof to block
the adherence of staphylococci.

10 23. The use of a fibrinogen binding protein or parts thereof from staphylococci as an
immunogen.

24. The use of a protein according to claim 1 or parts thereof as an immunogen.

~~Sys~~ 25. Vaccine composition including a protein according to claim 1.

26. Vaccine composition including a DNA sequence according to claim 8.

15 27. Method of active immunisation including the administration of a protein according to
claim 1 to a mammal.

28. Method of active immunisation including the administration of a DNA sequence
according to claim 8, to a mammal.

20 29. Method of passive immunisation including the administration of antibodies, raised
against a protein according to claim 1 or against a peptide, encoded by a DNA sequence according
to claim 8, to a mammal.

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